

*Shamov, U.S.S.R.*

499

AEC-tr-2296

THE PROBLEM OF THE ANGULAR DISTRIBUTION OF FISSION FRAGMENTS OF URANIUM AT HIGH ENERGY EXCITATIONS. O. V. Lozhkin, N. A. Perfilov, and V. P. Shamov. Translated by V. N. Rimskey-Korsakoff from Doklady Akad. Nauk S.S.S.R. 103, 407(1955). 3p.

The angular distribution of fission fragments of uranium was studied by using thick-layered photographic plates. Nuclear fine-grained emulsions of the type x-9 were saturated in a uranium salt solution and bombarded with 660-Mev protons. In all the observed cases of fission of uranium nuclei the direction of scattering of fragments with respect to the direction of the falling proton and the angle between the fragments were measured (the initial excitation energy of fission nuclei was measured by the angle between the fragments). All the fissions were divided into three groups according to the energy of excitation of the fission nuclei: 60, 150, and 320 Mev. The angular distribution of the fragments of uranium fission as a function of the initial energy of excitation is given. In the case of all the observed fissions the angular distribution can be approximately described by the function  $I(\phi) = a + b \sin^2 \phi$ , where  $\phi$  is the projected angle between the direction of the divergence of the fragments and the direction of the falling proton.

(auth)

(2)

Shamov. V.P.

275 AEC-ir-2304

ON THE YIELD OF FISSION AND STAR FORMATION  
AFTER CAPTURE OF  $\pi^-$  MESONS BY THE NUCLEI U, BI,  
AND W. N. A. Perfilov, O. V. Lozhkin, and V. P. Shamov.  
Translated by Morton Hamermesh from Doklady Akad.  
Nauk S.S.S.R. 103, 417-19(1955). 7p. 62

The ratio of fission and star formation probabilities  
after  $\pi^-$ -meson capture by U, Bi, and W was studied by  
placing these elements, in the form of fine-grained oxides,  
in the central layer of a three-layer nuclear emulsion. The  
results of the experiment are tabulated and show the number  
of stars per fission for  $U_3O_8$ ,  $Bi_2O_3$ , and  $WO_3$  to be 0/2.4,  
57, and 133, respectively. (B.J.H.)

(2)

SHAMOV, V. P.

400-Em2

539.172.13  
643. THE FISSION OF URANIUM NUCLEI BY PROTONS  
OF ENERGY 460 MeV. N.S.Ivanova, N.A.Perfilov and  
V.P.Shamov.  
Dokl. Akad. Nauk SSSR, Vol. 103, No. 4, 573-5 (1955). In  
Russian.

Photographic emulsion plates loaded with uranium were  
irradiated by protons of energy 460 MeV. In an electron-  
sensitive emulsion, 46 fissions were found, of which 83% were  
accompanied by the emission of light charged particles (up to  
six in number, with an average of 1.65). In another emulsion  
with a proton-sensitivity limit of about 80 MeV, 102 fissions  
were found with an average of 1 particle emitted. Thus 40%  
of the particles have energies greater than 80 MeV. The angu-  
lar distribution of these particles was predominantly forward.  
It is concluded that the majority of the particles originate in  
a nuclear cascade process in the uranium nucleus. Upper and  
lower limits to the mean excitation energy are roughly estimat-  
ed to be 198 and 128 MeV respectively. The fission cross-  
section was found to be  $1.2 \pm 0.3$  barn, so that about  $70 \pm 18\%$   
of uranium nuclei undergo fission on interacting with 460 MeV  
protons. The mean total path of the fission fragments is found  
to be the same as for fission by  $\pi$ -mesons and by slow neu-  
trons. The kinetic energy of the fragments is therefore  
derived only from their Coulomb repulsion. J.B.Sykes

(2)

Em2

Radium Inst. in. Khilopie, AS USSR

SHAMOV, V. P.

700-EM

539.172.13  
644. / MECHANISM OF THE FISSION OF HEAVY NUCLEI  
AT HIGH EXCITATION ENERGIES. V.P.Shamov.  
Dokl. Akad. Nauk SSSR, Vol. 103, No. 4, 883-5 (1965). In  
Russian. NO  
Nuclear photographic plates with a proton-sensitivity  
limit of about 30 MeV were loaded with uranium, bismuth or  
tungsten and irradiated by protons of 480 MeV and 660 MeV.  
For each energy, the mean number of charged particles, the  
ratio of alpha-particles to protons, the mean excitation energy  
and the fission cross-section are tabulated for each of the  
three elements. The alpha-particles are emitted isotropically,  
while the majority of the protons are directed forwards. A  
comparison of spectra shows that all the alpha-particles and  
about 70% of the protons are evaporated. The number of  
charged particles emitted is tabulated as a function of the  
initial excitation energy, showing a one-to-one correspond-  
ence. The mechanism of the fission process is analysed for  
each of the three elements investigated. It is found that fission  
occurs only after the nucleus has cooled by evaporating neutral  
and charged particles. J.B.Sykes

EMW

SHAMOV, V. P., IVANOVA, N. S. and PERFILOV, N. A.

"Exposition of the Results of Investigation of Fission by the Method of Photoemulsions in Perfilov's Laboratory in the Leningrad Radium Institute", a report presented at the Conference on the Physics of Nuclear Fission, 19-21 January 1956, Atom Energ., No. 1, 1956.

SHAMOV, V.P.

Nuclear emulsion technique for determining the threshold of emissive  
fission. Atom.energ.supplement no.1:129-151 '57. (MIRA 10:10)  
(Nuclear fission) (Photography, Particle track)

SHAMOV, V.P.

"The Use of Heavy Photographic Emulsions to Determine Emitting Fission  
Thersholds", Atomnaya Energiya, Vol 2, No 1, Jan 57, p 100.

SUM. I322

Shamov, V.P.

Distr: 4E3d

3402

FISSION OF URANIUM AND PROTACTINIUM AT HIGH EX-  
CITATION ENERGIES <sup>19</sup> V. P. Shamov (Badium Inst.

Academy of Sciences, USSR). Zhur. Eksptl. i Teoret. Fiz.  
33, 348-53 (1957) Aug. (in Russian)

Fission of U and Pa for initial excitation energies of 100 Mev is considered. The analysis is based on comparison of the yields of the uranium isotopes  $U^{235}$ — $U^{238}$  and protactinium isotopes  $Pa^{231}$ — $Pa^{232}$  (equal values of the parameter  $Z^2/A$ ) produced in the disintegration of uranium  $U^{238}$  by 340 Mev protons. The results of the analysis point to emission nature of U and Pa fission in the indicated range of initial excitation energy. (tr-auth)

5 Rml  
1

1/1

RML



AUTHOR PERFILOV N.A., SHAMOV V.P., LOZHEKIN V.I. PA - 2651  
 TITLE The triple fission of uranium by fast particles.  
 (Troynoye deleniye urana na bystrykh chastitsakh. - Russian)  
 PERIODICAL Doklady Akademii Nauk SSSR 1957, Vol 113, Nr 1, pp 75 - 77  
 (USSR).  
 Received: 5/1957 Reviewed: 6/1957  
 ABSTRACT Experimental Data:  
 Plates saturated with uranium were irradiated by 660 -protons.  
 On examination of the plates several fissions of the uranium  
 were registered where multiple-charge particles were radiated  
 with  $Z \geq 4$ . Among these particles a plane threefold fork was  
 found. The traces of all three particles of this fork belong  
 to multiple-charge particles: two belong to fission fragments  
 of a heavy nucleus and the third possesses a much stronger  
 darkening density than the traces of  $\alpha$ -particles. The authors  
 used a specially fine-grained emulsion with the limit of  
 sensitivity of  $\sim 35$  MeV for protons. The blackening density  
 along these three traces was measured photometrically. The  
 results found for total blackening are shown in form of a  
 diagram and compared with the blackening of the traces of  
 nitrogen ions. The nuclear charge number can be determined  
 from the angle of inclination of the blackening curve. For  
 one of the particles the value of  $Z_{III} = 9,8 \pm 1$ . was

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SHAMOV, A. P.

"THE CALCULATION OF PROTON-INDUCED AG AND Br NUCLEI FISSION AT  $E_p=180-660$  Mev".

Report by A. P. Shamov, presented at 2nd UN Arms-for-Peace Conference, Geneva,

7-13 Sept. 1978.

21 (7)

AUTHOR Shamov, V. P.

SOV/56-35-2-2/60

TITLE The Fission of Silver Nuclei by Protons of High Energy  
(Deleniye yadern serebra protonami bol'shoy energii)

PERIODICAL Zhurnal eksperimental'noy i teoreticheskoy fiziki 1958,  
Vol 35, Nr 2 pp 316-321 (USSR)

ABSTRACT. Such fission processes have already been investigated several times in the case of heavy and light nuclei, but not in the case of nuclei of medium weight. It was this fact that gave rise to the present work for which the author used the nuclear emulsion "F-9 sensitive" with a proton sensitivity of  $\sim 45$  MeV which had been irradiated with an intensive proton beam of different energy. (Irradiation was carried out on the synchrocyclotron of the Ob'yedinennyy institut yadernykh issledovaniy (United Institute of Nuclear Research)) Measuring results:

	$d$ [cm]	$E_p$ [MeV]	$\sigma_f$ (AgBr) [cm <sup>2</sup> ]
	0	660	$3.5 \cdot 10^{-28}$
Card 1/2	10	500	$2.7 \cdot 10^{-28}$

The Fission of Silver Nuclei by Protons of  
High Energy

SOV/56 35-2 3/60

$d$  [cm]

$E_p$  [MeV]

$\sigma_f$  [cm<sup>2</sup>]

20

300

$3.3 \cdot 10^{-26}$

( $d$  = thickness of the copper filter  $E_p$  = proton energy  
behind the filter,  $\sigma_f$  = fission cross section)

The other chapters deal with the final nuclei in dependence  
on the charge and the interaction process (spallation  
cascade-evaporation). The fission of silver nuclei leads to  
the formation of fragments of equal mass as well as to the  
emission of a large number of charged particles. In  
conclusion the author thanks Professor N. A. Perfilov as  
well as G. V. Lozhkin, V. I. Ostroumov, and V. F. Darovskikh  
for their advice and cooperation. There are 2 figures,  
3 tables, and 5 references, 4 of which are Soviet.

ASSOCIATION: Radiyevyy institut Akademii nauk SSSR (Radium Institute,  
AS USSR)

SUBMITTED: February 18, 1956

Card 2/2

SHAMOV, V.P.

Mechanism of the fission of uranium at high excitation energies.

Trudy Radiev, ~~Inst.~~ AN SSSR 9:45-51 '59.

(MIRA 14:6)

(Uranium) (Nuclear fission)

SHAMOV, V.P.

Fission of heavy nuclei ( $Z \leq 73$ ) at high excitation energies. Trudy  
Radiev.inst.AN SSSR 9:52-54 '59. (MIRA 14:6)  
(Nuclear fission)

SHAMOV, V.P.

Preparation of a solution containing bismuth for filling nuclear  
photoemulsions. Trudy Radiev.inst.AN SSSR 9:279-280 '59.  
(MIRA 14:6)

(Bismuth) (Photographic emulsions)

20195  
S/194/51/000/005/010/078  
D201/0303

12 2200

AUTHORS:

Gorin, A.V., Grosman, V.A., Drapchinskiy, L.V.,  
Rayevskiy, B.N., Romanov, L.P., Storozhenko, E.P.,  
Fedorov, Yu.P., Sharvin, G.M. and Shamov, V.P.

TITLE:

A mobile radiometric emergency laboratory using  
semiconductor devices

PERIODICAL:

Referativnyy zhurnal. Avtomatika i radioelektronika,  
no. 5, 1961, 51-52, abstract 5 A235 (Dokl. nauchn.  
konferentsii in-ta radiats. gigiyeny po itogam rab-  
oty za 1959, g., L., 1960, 18-19)

TEXT: A description is given of a complete mobile laboratory,  
mounted on the automobile YAZ-450 A (UAZ-450 A) and which is to be  
used for detecting radioactive isotope contamination of certain  
areas or of separate objects. The laboratory equipment consists  
of the following: 1) automatic recorder of the level of  $\gamma$ -back-  
ground from  $10$  to  $10^5$  microcurie/hr (MPR-PPC-5)(IRG-PGS-5); 2) 2

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23195

S/194/61/000/005/010/078  
D201/D303

A mobile radiometric emergency...

calculating machines (ИРГ-ПР-100)(IRG-PP-100)); 3) supplies 200-2000 V; 4) head screening (thickness 40 mm) for counters CTC-5 (STS-5) in cassettes or for the end-counter; 5) rate counter ИРГ-ПР-1 (IRG-IP-1) with counting rate up to  $10^6$  pulses/min; 6) beta-gamma portable scintillating radiometer with ГР-25 (FEU-25) ИРГ-ПР-2 (IRG-PR-2). Power for the whole installation is supplied by the automobile battery. Power consumption ~ 15 watt. The laboratory personnel consists of three operators and driver. [Abstracter's note: Complete translation]

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85345

9,7500

S/120/60/000/005/013/051  
E192/E382

AUTHORS: Rayevskiy, B.N., Romanov, L.R. and Shamov, V.P.

TITLE: A Counting Decade Based on Transistors

PERIODICAL: Pribory i tekhnika eksperimenta, 1960, No. 5,  
pp. 62 - 64

TEXT: A detailed circuit diagram of the device is shown in Fig. 1. The decade consist of four bistable circuits and a diode reset key. The bistable circuits are based on transistors type П14 (P14). The circuits are reset to zero by momentarily applying the supply voltage to the collector of the lefthand-side transistor via a diode. Unlike in the standard decade circuits, a direct feedback is provided from the output of the bistable circuit  $T_1$  to the input of the circuit  $T_4$  and by providing a diode key between  $T_1$  and  $T_2$ . The decade operates as follows. Normally, all the bistable circuits are in their rest position, which is characterised by the lefthand-side transistor being closed and the righthand-side transistor conducting. A voltage of

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S/120/60/000/005/013/051  
E192/E382

#### A Counting Decade Based on Transistors

-10 V is applied to the key diode from the collector of the lefthand-side transistor of  $T_4$ . The divider  $R_{10}$  and  $R_{11}$  keeps the anode potential of this diode at -8V; consequently, the diode is conducting. Thus, the key transmits positive pulses to the input of  $T_2$ . The pulses appearing at the second input of  $T_4$  cannot operate it since its righthand-side transistor is open. The eighth pulse triggers  $T_4$  so that its lefthand-side transistor becomes conducting and the righthand-side transistor is closed. The voltage at the key diode will thus be increased to -1.5 V and the key becomes nonconducting to positive pulses. The ninth pulse changes the state of  $T_1$ , while the tenth pulse returns  $T_1$  and  $T_4$  to their rest position. The decade now produces a positive output pulse and returns it to its original state. The resolving time of the decade is 7  $\mu$ s and the power consumed by it is 0.15 W. The decade was constructed as a plug-in unit

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E192/E382

A Counting Decade Based on Transistors

and its photograph is shown in Fig. 2.

There are 2 figures and 5 references: 3 Soviet and  
2 English.

ASSOCIATION: Institut radiatsionnoy gigiyeny  
(Institute of Radiation Hygiene)

SUBMITTED: September 17, 1959

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86740

9.2520 (1154 ONLY)  
9.4141  
9.4140

S/120/60/000/006/015/045  
E041/E335

AUTHORS: Bezmenov, O.M., Lebedev, O.V. and Shamov, V.P.

TITLE: Wide-band Transistor Preamplifier

PERIODICAL: Pribery i tekhnika eksperimenta, 1960, No. 6,  
pp. 56 - 57

TEXT: The circuit of Fig. 1 is to match the high output resistance of the photomultiplier of a scintillation gamma-ray spectrometer with the low characteristic impedance of a coaxial cable. The great attraction of the transistor circuit is its freedom from microphony. The two transistors  $\Pi_3$  and  $\Pi_4$  form an emitter follower analogous to the White circuit, well known for tubes. The base current of the lower transistor, whose high AC resistance constitutes the emitter load of the upper transistor, is stabilized by the silicon stabilistor  $\Pi_5$ . The transistors are alloy-diffusion types  $\Pi-402$  (P-402) or  $\Pi-403$  (P-403). The load on the amplifier is a 150 ohm resistor connected by 20 m of coaxial

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86740

S/120/60/000/006/015/045  
EO41/E335

# Wide-band Transistor Preamplifier

cable. The overall gain, including the cable, is 0.92. The input resistance of the amplifier is 250 k $\Omega$  in parallel with 16 pF. The output resistance of the amplifier is 8.6  $\Omega$ . The circuit will handle without distortion pulses between +0.4 and -3.5 V, at temperatures up to +70 °C. The rise time does not exceed  $2 \times 10^{-8}$  sec with a very small overshoot. Fig. 3 shows the effect on the rise time of the output signal ( $\tau_{\phi} \cdot 10^{-8}$   $\mu$ s) on the capacitance ( $C_H, \mu$ F) connected in parallel with the load resistor (150 ohm); the rise time of the input signal is  $3.8 \times 10^{-8}$  sec. To obtain the best results the transistors are carefully selected.  $\pi_1$  and  $\pi_2$  should have high  $\beta$ ,  $\pi_3$  can have an average  $\beta$  while  $\pi_4$  is not critical. The diode  $\Delta$ -810 (D-810) can be changed

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86740

S/120/60/000/006/015/045  
E041/E335

# Wideband Transistor Preamplifier

if  $R_6$  and  $R_7$  are modified to give a through-current of 1.5 - 2.0 mA. The operation is proof against supply fluctuations of  $\pm 10\%$ . A.N. Pisarevskiy is thanked for valuable comments. There are 3 figures and 4 references: 1 Soviet and 3 English.

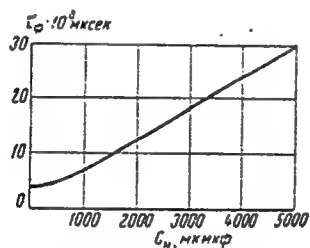


Рис. 3. Зависимость времени нарастания выходного сигнала от величины емкости, присоединенной параллельно нагрузке 150 ом. Время нарастания сигнала на входе  $3.8 \cdot 10^{-8}$  сек

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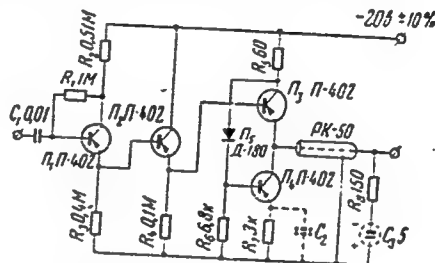


Рис. 1. Схема предусилителя

86740

S/120/60/000/006/015/045  
E041/E335

Wide-band Transistor Preamplifiers

ASSOCIATION: Institut radiatsionnoy gigiyeny  
(Institute of Radiation Hygiene)

SUBMITTED: November 9, 1959

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S/194/61/000/001/011/038  
D216/D304

AUTHORS: Lebedev, O.V. and Shamov, V.P.

TITLE: Portable counter using decatron tubes

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika,  
no. 1, 1961, 1, abstract I E3 (Gigiyena i sanitariya),  
no. 7, 1960, 63-64)

TEXT: A counter using decatrons has been designed for working with nuclear radiation counters. The memory storage capacity is  $10^6$  - 1 pulses and the computing speed is  $3 \times 10^6$  pulses per min. There is an intensimeter and a regulated 0 - 1.6 kV EHT supply for the counters. The total supply power is 35 W and the dimensions are 320 x 195 x 135 mm<sup>3</sup>.

Card 1/1

PERFILOV, N.A.; IVANOVA, N.S.; LOZHKIN, O.V.; MAKAROV, M.M.; OSTROUMOV, V.I.;  
SOLOV'YEVA, Z.I.; SHAMOV, V.P.

Fragmentation of Ag and Br nuclei by 9 Bev. protons. Zhur.eksp.i  
teor.fiz. 38 no.2:345-350 F '60. (MIRA 14:5)

1. Radiyevyy institut Akademii nauk SSSR.  
(Protons) (Nuclear reactions)

83718

S/056/60/038/004/011/048  
B019/B070

24.6600

AUTHORS:

Arifkhanov, U. R., Makarov, M. M., Perfilov, N. A.,  
Shamov, V. P.

TITLE:

Production of Fragments<sup>19</sup> Under the Action of 100-Mev Protons

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960,  
Vol. 38, No. 4, pp. 1115-1122

TEXT: The authors have investigated the fragment production of the nuclei of a photoemulsion. The emulsion used was of type П-9 (γ) (P-9 (ch)), which allowed the observation of the charged products of nuclear fragmentations, and a visual study of the multiply charged particles with  $Z \geq 3$ , of  $\alpha$  particles, or protons. The experiments were carried out at the synchrocyclotron of the OIYaI (Joint Institute of Nuclear Research). Fig. 1 shows the experimentally observed fragment production cross section as function of the photon energies for heavy and light nuclei. Fig. 2 shows the reduced probability for the departure of fragments from a heavy nucleus as a function of the number of prongs of a star. In the fragmentation of Ag and Br, the following fragments

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Production of Fragments Under the Action  
of 100-Mev Protons

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S/056/60/038/COA/011/048  
B019/B070

were found: Li (30), Be (14), and B (5). In the fragmentation of C, N, and O the following fragments were found: Li (20), Be (12), and B (5). Fig. 3 shows the energy distribution of the Li and Be fragments for heavy and light nuclei; Fig. 4 shows the distribution of the fragments according to their range, and Fig. 5 shows the angular distributions of the fragments. The fragmentation cross section for the heavy nuclei of the emulsion is given to be  $1.93 \pm 0.64$  millibarns and of the light nuclei  $1.16 \pm 0.36$  millibarns. The results of Q. V. Lozhkin and N. A. Perfilov (Ref. 6) and M. G. Meshcheryakov (Ref. 14) among others are also mentioned. From the discussion of the results the authors conclude that for the energy range of the incident protons ( $\sim 100$  Mev) investigated here the fragments of secondary nucleons are formed by quasi-elastic scattering on moving nucleon complexes. There are 8 figures, 1 table, and 18 references: 7 Soviet, 8 US, 1 Japanese, 1 French, and 1 German. X

ASSOCIATION: Radiyevyy institut Akademii nauk SSSR (Radium Institute of the Academy of Sciences, USSR)

SUBMITTED: November 26, 1959

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21(7)

AUTHORS:

Perfilov, N. A.,

Lozhkin, O. V., Shamov, V. P.

S/053/60/070/01/001/007

B006/B017

TITLE:

The Processes of Fragmentation and Fission<sup>19</sup> in the Interaction  
Between High-energy Particles and Nuclei

PERIODICAL: Uspekhi fizicheskikh nauk, 1960, Vol 70, Nr 1, pp 3-56 (USSR)

ABSTRACT:

The present paper gives a detailed survey on the fundamental problems of nuclear fragmentation and fission. From the large number of publications available in this field individual examples are chosen and discussed to illustrate the chapters. In the introduction the cascade evaporation model used for describing nuclear reactions induced by particles with energies ranging from  $10^2$  to  $10^4$  Mev is discussed and the conclusions drawn from this model are investigated individually. Part I deals with fragmentation. Fragmentation is any form of nuclear disintegration on which multiply-charged particles with  $Z > 3$  are formed. The individual sections of this part deal with 1) fragmentation cross section; a three-page table and a number of well selected diagrams illustrate the effects influencing the cross sections. 2) The multiplicity in the fragmenta-

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The Processes of Fragmentation and Fission  
in the Interaction Between High-energy  
Particles and Nuclei

S/053/60/070/01/001/007  
B006/B017

tion process; 3) the nature of the fragments produced, 4) energy distribution of the fragments (Figs 11, 12, 13); 5) angular distribution of the fragments (Fig 14, Table 3); 6) the properties of the residual nuclei; 7) the mechanism of fragmentation (nuclear cascade process, particle evaporation of the excited nucleus, process of asymmetrical nuclear fission, hypotheses on the fragmentation process). Part II deals with the characteristics and the experimental results of nuclear fission at high excitation energies. Section 1: fission cross sections; section 2: angular distribution of the fission fragments, section 3: mass spectra in fission (Figs 19, 20, 21); section 4: fission mechanism and the methods of its determination (investigation of the energy spectrum and of the number of charged particles - photomethod; analysis of the ranges of the fragments in the case of different primary excitation energies; investigation of the angular correlations of the emitted particles with the fragments; Monte Carlo method). For each of these methods which are individually described the authors give examples (mainly taken from western publications). In the paper

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The Processes of Fragmentation and Fission  
in the Interaction Between High-energy  
Particles and Nuclei

S/053/60/070/01/001/007  
3006/B017

only N. S. Ivanova, V. Sedorov, Ye. Grigor'yev, V. N. Mekhedov,  
O. V. Lozhkin, and V. I. Ostroumov as well as R. Filov are  
mentioned among the large number of non-Soviet scientists.  
There are 25 figures, 9 tables, and 214 references, 74 of which  
are Soviet. ✓

Card 3/3

PERFILOW, N.; LOZKIN, O.; SZAMOW, W.

Fragmentation processes in interactions of high energy particles and nuclei. Postepy fizyki 12 no.2:115-153 '61.

1. Instytut Ćadowy Akademii Nauk ZSRR.

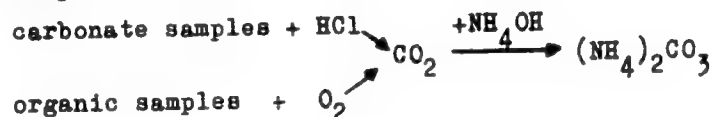
S/186/61/OC3/001/018/020  
A051/A129

AUTHORS: Starik, I.Ye., Shamov, V.P., Arslanov, Kh.A., Zharkov, A.P.,  
Murashov, G.M.

TITLE: Scintillation technique of counting natural radio-carbon and its  
application to the determination of the absolute age

PERIODICAL: Radiokhimiya, v 3, no 1, 1961, 101-113

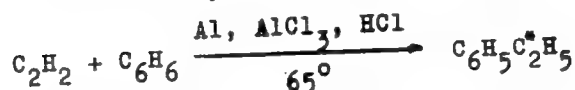
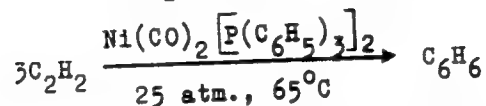
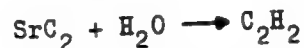
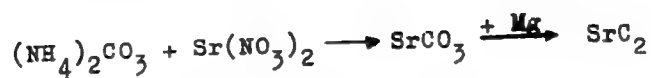
TEXT: The present article deals with a method developed by the authors for  
liquid-scintillation counting of natural radio-carbon, intended for deter-  
mining the absolute age. The following scheme was used for the chemical  
preparation of the sample:



Card 1/8

S/186/61/003/001/018/020  
A051/A129

Scintillation technique of counting ...




A coincidence scintillation counter was designed for counting  $\text{C}^{14}$ , and benzene and ethylbenzene were used as the liquid scintillator solvents, synthesized according to the above-given scheme. Combined with a highly-effective counter these can be used to determine the absolute age up to 37,000 years in the case of ethylbenzene, and 48,000 years in the case of benzene. In selecting a scintillation counting method the authors base their attempts on finding a substance which is easily prepared and does not require large

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S/186/61/003/001/018/020  
A051/A129

Scintillation technique of counting ...

amounts of carbon, so that the advantages of both the proportionate and scintillation methods could be combined. Ethylbenzene and benzene chosen by the authors as the carriers of the natural carbon activity are said to render the scintillation method applicable to young samples and in the case of old ones increase the sensitivity of the method. Ethylbenzene is recommended from the following considerations: 1) 22.3% from the sample can be introduced into the ethylbenzene molecule; 2) the ethylbenzene molecule itself is an excellent solvent of liquid scintillators, being inferior only to the very best solvents, such as toluene, xylene; 3) its preparation and purification are simple and do not require complex apparatus or reagents difficult to obtain; 4) for its synthesis a relatively low amount of carbon, 8-15 g, is required. The apparatus used by the authors to count natural  $C^{14}$  is described: the photomultiplier function at room temperature, the complete amplification of the amplifier is 400. The counting rate of the noise pulses at an effectiveness of the count of natural  $C^{14}$  equalling 60-65% is 0.5 pulses/min. An upper level discriminator is used to lower the counting rate of the background determined by the cosmic and external radiations in the given apparatus. Fig 1 is a block-diagram of the described



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S/186/61/003/001/018/020  
A051/A129

## Scintillation technique of counting ...

apparatus and Fig 2 shows the principal circuit of coincidences. The tubes of the apparatus are fed by stabilized sources of anode and incandescent voltage, and the photomultipliers by a BC-9(VS-9)-type high-voltage source. The positive pulses from the exits of two non-overloaded amplifiers are fed to the inputs of the diode low-level discriminators ( $\lambda_2, \lambda_9$  in Fig 2). The limiting ( $\lambda_1, \lambda_8$ ) diodes are used for eliminating the negative pulse outputs fed to the low-level discriminator inputs. The selected photomultiplier should satisfy the following requirements: 1) a high sensitivity of the photocathode, 2) a high total sensitivity, 3) a low noise level, 4) stability over long periods of service, 5) a good temporary resolving power. The adjustment of the counter for the  $C^{14}$  spectrum is carried out according to the  $\gamma$ -line of  $Cs^{137}$ . The discriminators of the lower level are installed so that the number of the noise pulses at the output of the circuit of coincidences would be equal to 0.5-1 pulses/min. The sample is counted in a 15.5 cm<sup>3</sup>-volume cuvette made of optic quartzite. The preparation of ethylbenzene and benzene from the carbon of the investigated material involves the following chemical steps: 1) formation of  $CO_2$  from the sample, 2) production of strontium carbonate from  $CO_2$  of the sample, 3) reduction of the

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S/186/61/003/001/018/020  
A051/A129

Scintillation technique of counting ...

strontium carbonate to strontium carbide, 4) decomposition of strontium carbide, separation of acetylene from hydrogen and purification of acetylene, 5) synthesis of ethylbenzene from acetylene, 6) purification of ethylbenzene and benzene. The samples to be measured are carbonates or organic substances (coal, wood, peat, etc.). In both cases the carbon of the sample is separated out in the form of  $\text{CO}_2$ . The formation of  $\text{CO}_2$  from the carbonate samples is performed by the decomposition of the sample with hydrochloric acid. If the investigated sample is an organic material, the formation of  $\text{CO}_2$  is carried out by heating the sample in an oxygen flow. The single synthesis of large amounts of acetylene (up to 30 l) is carried out according to the Sues method (Ref 4), the main advantage of which is said to be the almost quantitative yield of acetylene (95%). The synthesis of ethylbenzene is carried out according to the method of hydroalkylation of benzene with acetylene in the presence of metallic Al,  $\text{AlCl}_3$  and hydrogen chloride (Ref 16). The authors conducted a complete synthesis of benzene from the investigated material according to Reppe's method (Ref 13). The catalyst for the synthesis of benzene by the given method is a compound of a mixed type having both an organic as well as an inorganic nature:  $\text{Ni}(\text{CO})_2 \cdot \text{P}(\text{C}_6\text{H}_5)_3/2$ .

Card 5/8



L 6860-65 EWT(m)/EPF(c)/SPR/EWP(j)/T/EWP(q)/EWP(b) Po-l/Pr-l/Ps-l LJP(c)/  
 AFWL/ESD(t)/RAEM(t) RM/WW/JD  
 ACCESSION NR: AR4044269 S/0272/64/000/006/0160/0161 70

SOURCE: Ref. zh. Metrologiya i izmeritel'naya tekhnika. Otdel'nyy vy\*pusk,  
 Abs. 6.32.1133

AUTHOR: Gutkevich, S. G.; Lebedev, O. V.; Pisarevskiy, A. N.; Selyaninova,  
N. S.; Shamov, V. P.

TITLE: New methods for the packing of scintillators 19

CITED SOURCE: Sb. Stsintillyatory\* i stsintillyats. materialy\*. Khar'kov,  
 Khar'kovsk. un-t, 1963, 236-238

TOPIC TAGS: scintillator, single crystal, stilbene, tolane/OK-50 glue 18

TRANSLATION: There is described a method of packing of single crystals with  
 the help of glue OK-50. The method ensures transparent, colorless, and very  
 durable gluing of scintillators NaI(Tl), CsI(Tl), KI(Tl), stilbene, tolane, and  
 plastic crystals with glass, improves their resolving power, and makes it

Card 1/2

L 6860-65

ACCESSION NR: AR4044269

possible to prepare very thin films of scintillators and to use for packing thin-walled containers which cannot be taken apart. The method is recommended for introduction into industrial production.

SUB CODE: OP, SS

ENCL: 00

Card 2/2

SHAMOV, V. P.; MALYKHIN, I. M.

"Method for Calculation of Absorbed Doses from Bioassay Data in Cases of Chronic Ra-226 Intake."

report presented at the Symp on Assessment of Radioactive Body Burdens in Man, Heidelberg, 11-16 May 64.

L 53897-65

ACCESSION NR: AP5017369

UR/0240/64/000/010/0096/0104

AUTHOR: Shamov, V. P.

TITLE: Concerning the maximum allowable concentration of strontium-90 in food products

SOURCE: Gigiyena i sanitariya, no. 10, 1964, 96-104

TOPIC TAGS: radiobiology, radiostrontium, radioisotope, radiation biologic effect, food sanitation, air pollution

Abstract: The author is a member of the International Commission on Radiation Protection which, at its Stockholm meeting (date not given) proposed revision of the values of the maximum allowable concentrations in air and food products for such radioactive isotopes as had sufficient data on their biological effects. The present article deals with  $\text{Sr}^{90}$  and an editorial preface states that it is published for discussion since its conclusions, insofar as the general population is concerned, must be considered still controversial.

The available data concerning the maximum allowable concentration of  $\text{Sr}^{90}$  calculated according to various models representing its accumulation in the human body is summarized and tabulated, with a distinction made

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L 53897-65

ACCESSION NR: AP5017369

between professional workers and the general public. The Commission's decision was that the maximum allowable concentration of  $Sr^{90}$  could be safely increased four to seven times, specifically four times in drinking water. Orig. art. has 26 formulas.

ASSOCIATION: Leningradskiy nauchno-issledovatel'skiy institut radiatsionnoy gigiyeny (Leningrad Scientific Research Institute of Radiation Hygiene)

SUBMITTED: 28Jun63

ENCL: 00

SUB CODE: LS, CB

NO REF SOV: 000

OTHER: 000

JPBS

Card 2/2

L 63802-65 ENT(m)/EWA(h)

ACCESSION NR: AP5021769

UR/0240/64/000/011/0104/0111

AUTHOR: Shamov, V.P.

TITLE: Problem of the maximum permissible concentrations of uranium in water and air

SOURCE: Gigiyena i sanitariya, no. 11, 1964, 104-111

TOPIC TAGS: air pollution, water pollution, uranium, radioactive contamination, isotope

ABSTRACT: In connection with a review of the established values of the maximum permissible concentrations of uranium in water and air, the author presents the views of the International Commission of Radiological Protection in regard to standards that are to be applied with respect to the concentrations of the various isotopes of uranium. He points out that the intention exists of increasing by a factor of 5 the maximum permissible concentration of  $U^{230}$  -  $U^{236}$  present in the form of insoluble compounds in the air, and by a factor of 10 the maximum permissible concentrations of  $U^{238}$  and of natural U present in the form of insoluble compounds in the air.

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L 63802-65

ACCESSION NR: AP5021769

In discussing the maximum permissible concentrations of soluble uranium compounds in water for use by the population, the author points out that the presently accepted value of the coefficient of resorption of uranium from the gastrointestinal tract into the blood ( $f_1 = 10^{-4}$ ) and that of the effective energy in the gastrointestinal tract are far from being precise and should be revised. He states that calculation of standards on the assumption that  $f_1 = 10^{-2}$  for  $U^{230}$  -  $U^{236}$  would be justified.

Orig. art. has: 11 formulas, 2 tables.

ASSOCIATION: Leningradskiy nauchno-issledovatel'skiy institut radiatsionnoy gigiyeny (Leningrad Scientific Research Institute of Radiation Hygiene)

SUBMITTED: 18Apr63

ENCL: 00

SUB CODE: LS, CB

NR REF SOV: 000

OTHER: 000

JPRS

*llc*  
Card 2/2

L 10618-66

ACC NR: AP5027300

SOURCE CODE: UR/0241/65/010/010/0010/0014

AUTHOR: Yershov, E. B.; Karan, A. A.; Spirin, V. D.; ~~Shamov, V. P.~~ <sup>26</sup>  
B

ORG: Scientific Research Institute of Radiation Hygiene, Leningrad  
(Nauchnoissledovatel'skiy institut radiatsionnoy gigieny)

TITLE: Experimental determination of absorbed dose from alpha-emitters  
in contact media

SOURCE: Meditsinskaya radiologiya, v. 10, no. 10, 1965, 10-14

TOPIC TAGS: radiation dosimetry, alpha particle, ~~medical nuclear appli-~~  
~~cation, applied mathematics, mathematic prediction, anatomic model~~  
*irradiation, radiation biologic effect, histology*

ABSTRACT: Present calculation of absorbed radiation doses and their  
distribution in tissues upon internal irradiation by alpha particles  
does not sufficiently consider the layer between the active and the  
passive medium, that is, the secretion layer in intestinal irradiation.  
This work involves study of factors influencing the dose and experimen-  
tal determination of the absorbed dose according to the depth of the  
irradiated tissue, either without filter between the contact media or  
for any filter thickness, by means of an alpha spectrometer and calcu-  
lation. The model for the active medium was a thick layer of pressed

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UDC: 615.849.7-031



L 10618-66

ACC NR: AP5027300

talc with evenly distributed  $\text{Pu}^{239}$ , and that for the passive layer was koloxilin lamellae simulating cellular layers of various thickness. Even distribution of radioactive isotope and irradiation throughout the media was assumed. Based on the spectra obtained and insertion of values into the formula

$$E = \frac{\sum E_i \cdot N_i}{\sum N_i} \quad (1)$$

where  $E_i$  is the energy of alpha particles corresponding to the i-channel,  $N_i$  the number of alpha particles with  $E_i$  energy, and further calculation in consideration of  $\Delta d$  layer, the formula

$$D \Delta d = \frac{E \Delta d \cdot 1.6 \cdot 10^{-8}}{\Delta d \cdot 1 \cdot 100} \frac{(\text{rad/min})}{\text{RAD/min}} \quad (5)$$

was arrived at for the dose absorbed in layer  $\Delta d$ . It is concluded that this method of simulation permits determination of the distribution of the quantity of dose absorbed according to the depth of the irradiated medium (mucosal cover of the gastrointestinal tract) from the known thickness of the filter layer (secretion layer in the tract). The mean energy of alpha particles leaving the thick emitter is equal to 0.56 of

Card 2/3

L 10618-66

ACC NR: AP5027300

the maximal value. Energy liberation beyond the boundary of the source of a thickness equal to the path of alpha particles is 14% of the maximal energy liberation within this layer. In the absence of an absorbing filter the amount of absorbed dose on each cellular layer compared to the mean dose over the whole path is equal to:

$$D_I = 2,64 \cdot \bar{D}_{Ra}; \quad D_{II} = 1,26 \cdot \bar{D}_{Ra}; \quad D_{III} = 0,48 \bar{D}_{Ra};$$

$$D_{IV} = 0,1 \cdot \bar{D}_{Ra}.$$

The indices I, II, III and IV designate the corresponding cellular layers. Orig. art. has: 5 formulas and 4 figures.

SUB CODE: 06. / SUBM DATE: 12Aug64/ ORIG REF: 000/ OTH REF: 003

HW

Cerd 3/3

L 10806-66 EWT(m)/T IJP(c)  
 ACC NR: AP5027306 SOURCE CODE: UB/0241/65/010/010/0067/0073 4/5  
 AUTHOR: Belle, Yr. S.; Kostikov, Yu. I.; Shamov, V. P.; Shapiro, E. L. 55  
 ORG: Leningrad Scientific Research Institute of Radiation Hygiene, 35  
 Ministry of Health, RSFSR Leningradskiy Nauchno-Issledovatel'skiy  
 institut radiatsionnoy gigieny Ministerstva zdavookhraneniya RSFSR  
 TITLE: Radiometric properties of the large liquid scintillation counter 19.85  
 BZhSS-1  
 SOURCE: Meditsinskaya radiologiya, v. 10, no. 10, 1965, 67-73  
 TOPIC TAGS: scintillation counter, gamma counter, scintillation spec-  
 trometer, radiation instrument, radiobiologic instrumentation, experi-  
 ment animal/BzhSS-1 scintillation counter 10  
 ABSTRACT: The article describes the counter and illustrates it in a  
 figure. Its 4π dimension and large measuring volume permits consider-  
 able amplification of the criterion of radiometric quality,  
 n<sup>2</sup>/n background. It is particularly suitable for measuring low gamma  
 radiation in experimental animals up to a large rabbit and other objects  
 of similar size. A procedure for finding the optimal differential  
 registration channel is given. The instrument has spectrometric semi-  
 Card 1/2 UDC: 612.014.482:621.387.4

L 10806-66

ACC NR: AP5027306

resolution equal to 39 and 21% for Cs<sup>137</sup> and K<sup>40</sup> respectively and thus does not allow analysis of complex gamma radiation spectra. Activities of  $5.10^{-11}$  to  $5.10^{-3}$  curies can be measured. Isosensitivity of the larger part of the measuring volume is shown to be high and is seen particularly upon moving the source. The configuration of the object hardly influences the measuring results. Increased specimen volume will lead to self-absorption and attenuation of initial gamma irradiation producing a slight drop in the count. This is shown on aqueous phantoms. For those up to 0.5 liter this does not depend on radiation energy and amounts only to a few percent. This counter has been used for radiobiologic and radiation protection studies and has been found highly reliable. Reproducibility was increased 10-20 times compared to radiochemical methods, and the number of measured objects reached 6000 per year. Its use for prevital radioactivity determination in experimental animals afforded studies of isotope metabolism in the organism. Orig. art. has: 10 figures.

SUB CODE: 06, 07/ SUBM DATE: 05Jan 65/ ORIG REF: 001/ OTH REF: 002

Card

1  
m  
2/2

L 27580-66 ENT(m)

ACC NR: AP6018375

SOURCE CODE: UR/0241/65/010/005/0082/0083

AUTHOR: Malykhin, V. M.; Shamov, V. P.

30  
B

ORG: none

TITLE: Method of calculating the irradiation dose and maximum permissible concentration of fresh fission activity in different parts of the gastrointestinal tract

SOURCE: Meditsinskaya radiologiya, v. 10, no. 5, 1965, 82-83

TOPIC TAGS: digestive system, radiation dosimetry, beta radiation

ABSTRACT: Formulas are presented for calculating the dose loads for different periods of consumption of a ration charged with fragments. The doses are calculated for an initial level of 1 microcurie of total beta-activity (A) for a ration one hour old

$$q_1 = 1(A \cdot \Omega; \Omega + 1), \text{ where } \Omega \text{ is the moment of fission.}$$

The results of the calculations combined with the data on the dose loads for other critical organs can be used to standardize the consumption of nutrients and water according to various dose criteria (e.g., 20 ber for 10 days of consumption, 30 ber for 30 days, etc.). The corresponding maximum permissible concentrations in microcuries are obtained by dividing the dose criterion by the dose from 1 A CA<sub>z</sub> in the initial ration.

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UDC: 616.33/34-001.29-613.2

L 27580-66

ACC NR: AP6018375

The data were compared with the results obtained by Greitz, who used a somewhat different method. They deviated by less than 10% for the most critical regions, the ascending and descending intestines. Orig. art. has: 1 figure and 4 formulas.  
JPRS

SUB CODE: 06, 20 / SUBM DATE: 13 Mar 64

Card 2/2 CC

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... ..  
Med. ... ..

... ..  
... ..

... .., A.A. SHIRIN, A.L. ... .., V.P.

Experimental determination of the absorbed dose from  $\alpha$ -emitters  
in contact media. Med. rad. 10 no.10:10-14 O '63.

(MIRA 18:12)

... Submitted August 12, 1964.



BELLE, Yu.S.; KOSTIKOV, Yu.I.; SHAMOV, V.P.; SHAPIRO, E.L.

Radiometric properties of the large liquid scintillation  
counter BZhSS-1. Med. rad. 10 no.10:67-73 0 '65.

(MIRA 18:12)

1. Leningradskiy nauchno-issledovatel'skiy institut  
radiatsionnoy gigiyeny Ministerstva zdravookhraneniya RSFSR.  
Submitted January 5, 1965.

L 01065-66 ENT(m) DIAAP DM

ACCESSION NR: AP5014543

UR/0089/65/018/005/0519/0520  
539.12 39.121.64

AUTHOR: Yershov, E. B.; Karan, A. A.; Shamov, V. P.

TITLE: Concerning the energy distribution of alpha particles emitted from a thick source

SOURCE: Atomnaya energiya, v. 18, no. 5, 1965, 519-520

TOPIC TAGS: Alpha emitter, thick source, energy distribution, moderating ability, range energy ratio

ABSTRACT: In view of the difficulty of preparing thin screens to measure the moderating ability of a substance and the range/energy ratio of alpha particles in the investigated substance, the authors consider the possibility of determining the range-energy relation for a thick flat emitter on the basis of an analysis of the form of its alpha-particle spectrum. The spectrum was measured with an alpha chamber and a 100-channel pulse-height analyzer. The pressed working compound (area  $\sim 3 \text{ cm}^2$ , thickness  $\sim 2 \text{ mm}$ ) was placed in a holder and contained uniformly distributed  $\text{P}^{239}$  atoms in a mass of talcum powder. The empirical form of the spectrum was obtained by breaking up the measured spectrum into four energy ranges, with a separate empirical formula obtained for each. By using the fact that talcum has

Card 1/2

L 01065-66

ACCESSION NR: AP5014543

moderating properties close to those of aluminum, it is found that the range-energy curve obtained from the empirical relations of the present work is in good agreement with calculations by others for aluminum. It is thus concluded that the proposed method makes it possible to find, with sufficient degree of accuracy, the moderating characteristics of any complicated substance which serves as a bulky base for a thick alpha source. Orig. art. has: 1 figure and 1 formula.

ASSOCIATION: none

SUBMITTED: 18Mar64

ENCL: 00

SUB CODE: NP

NR REF SOV: 002

OTHER: 002

Card 2/2 DP

L 28021-66 EWT(m)

ACC NR: AP5026456

SOURCE CODE: UR/0089/65/019/004/0401/0403

AUTHOR: Malykhin, V. M.; Moiseyev, A. A.; Shamov, V. P.

ORG: None

TITLE: Internal radiation doses<sup>19</sup> in man induced by Sr-90

SOURCE: Atomnaya energiya, v. 19, no. 4, 1965, 401-403

TOPIC TAGS: radiation biologic effect, radiation injury, strontium

ABSTRACT: The retention of strontium-90 in man and the effect of radiation doses on the bone tissue is discussed and calculated. The Sr-90 retention  $q$  (in nanocurie) was calculated by using the following formula:

$$q(t) = \frac{1}{100} R f_1 f_2 A e^{-\lambda(t-1)} \frac{t^{1-n} - 1}{1-n} =$$

$$= B R e^{-\lambda(t-1)} (t^{1-n} - 1).$$

Here,  $R$  - Sr-90 content in man-rat based on 1 pcu/day at the beginning;  $B$ -constant;  $t$ -time;  $A$  and  $n$ -parameters of power function; decay constant  $\lambda = 7 \times 10^{-5} \text{ day}^{-1}$ ; absorbed isotope fractions  $f_1 = f_2 = 0.3$ . The results of calculations are plotted in Fig. 1 showing the power function curve 1 (with  $A = 0.522$ ,  $n = 0.175$ ), the power function curve 2

Card 1/2

UDC: 577.391.087

14(5)

AUTHOR:

Shamev, Ye. Ye.

SOV/152-59-2-31/32

TITLE:

Economy and Efficiency in the Use of Derricks of 53 m Height  
(*Ekonomicheskaya effektivnost' primeneniya vyshek vysotoy 53 m*)

PERIODICAL:

Izvestiya vysshikh uchebnykh zavedeniy. Neft' i gaz,  
1959, Nr 2, pp 121 - 125 (USSR)

ABSTRACT:

In the present article the question of the economical use of derricks of 53 m height in drilling deep wells by a great number of chiselings is discussed. In order to solve this problem, the following index system is suggested: 1) Additional investment made necessary by the use of derricks of 53 m height, instead of 41 m. 2) Reducing construction costs in making wells. 3) Pay-off period for additional investments. 4) Speeding up drilling operations. After the end of drilling operations on the oilfield of Ozek-Saut (Stavropol' Sovnarkhoz) comparisons were made of the efficiency of derricks of 41 and 53 m height, respectively (Table 2). The use of derricks of 53 m height resulted in a considerable reduction of the time required for lowering and lifting. With the same

Card 1/3

Economy and Efficiency in the Use of Derricks of 50 m Height SOV/1,2-59-2-31/32

ASSOCIATION: Groznyenskiy neftyanoy institut (Groznyy Petroleum Institute)

SUBMITTED: October 31, 1958

Card 3/3

L 08746-67 ENT(1) JK  
ACC NR: AP6034524

SOURCE CODE: UR/0016/66/000/010/0094/0097

3

AUTHOR: Shamov, Yu. A.

ORG: Department of Infectious Diseases, Dagestan Medical Institute,  
Makhachkala (Kafedra infektsionnykh bolezney Dagestanskogo meditsin-  
skogo instituta)

TITLE: Typhoid fever<sup>6</sup> among vaccinated persons

SOURCE: Zhurnal mikrobiologii, epidemiologii i immunobiologii, no. 10,  
1966, 94-97

TOPIC TAGS: ~~human element~~, typhoid fever, vaccine, active immunity,  
IMMUNOLOGY, INFECTIVE DISEASE

ABSTRACT: The onset, course, and number of relapses of typhoid fever  
in a group of vaccinated and in a group of nonvaccinated patients were  
studied. The vaccinated group had received either dry alcoholic  
divaccine or Vi antigen.<sup>6</sup> Acute onset of the disease occurred more fre-  
quently in the vaccinated group, but severe forms of the disease were  
found less frequently than in the nonvaccinated group. Clinical course,  
mortality rate, and duration of hospital stay were the same for both  
groups. Relapses occurred more frequently in vaccinated than in non-  
vaccinated patients. Orig. art. has: 1 table. [W.A. 50]

SUB CODE: 06/ SUBM DATE: 27Jan66/ ORIG REF: 011/ OTH REF: 001  
Card 1/1 bc UDC: 616.927-036.1-06:616.927-084.47

SHANOVA, A.M.

Case of isolation of plague and pseudotuberculosis cultures from  
rodents in an area with an enzootic plague focus. Izv. Irk. gos.  
nauch.-issl. protivochum.inst. 21:63-67 '59. (MIRA 14:1)  
(MONGOLIA—PLAGUE) (MONGOLIA—PSEUDOTUBERCULOSIS)



SAFETY OF A THERMISTOR IN A MISSILE

Study of a thermistor in a missile  
Altai, Dokl. Akad. Nauk, Nov. 1961, 130-131, 130-131, 130-131.  
9-12 130 (MIRA 130-1)

1951, I. P.: Doklady Akad. Nauk (Mos) -- "The comparative physiology of the ear-  
reflex in the ear and respiratory conditioned reflexes". Lenin-  
grad, 1951. Inst. for Experimental Med of the Acad. Med. Sci. USSR, First Lenin-  
grad. Conf. on Acad. I. P. Pavlov), 200 copies (KL, No. 12, 1959, 136)

ARBUZOV, S.Ya.; BAZANOV, V.A.; NEKACHALOV, I.Ya.; PATALOVA, V.N.;  
PETELINA, V.V.; SHAMOVA, E.K.

Distribution of sulfur mercamine in the organs and tissues of  
irradiated and non-irradiated animals. Med.rad. no.5:62-66 '61.  
(MIRA 14:11)

1. Iz otdela radiobiologii (zav. - prof. S.Ya. Arbuzov) Instituta  
eksperimental'noy meditsiny AMN SSSR.  
(ETHYLAMINE) (RADIATION PROTECTION)

SHAMOVA, G. V.

Shamova, G. V. - "Change in the color of the skin as a means of determining the condition of blood circulation of the extremities in obliterating endarteritis,"  
In the symposium: V. N. Shamov, Kiev, 1949, p. 117-36

SO: U-4355, 14 August 53, (Letopis 'Zhurnal 'nykh Statey, No. 15, 1949)

SHAMOVA, G.V.

Determination of the state of peripheral circulation in endarteritis  
obliterans with the method of reactive hyperemia. Vopr. neirokhir.  
16 no.1:48-51 Jan-Feb 52. (CIML 21:4)

1. Of the First Department of Faculty Surgery imeni S.P. Fedorov, Military  
Medical Academy imeni S.M. Kirov.

SHAMOVA, G.V.

Familial torsion dystonia. Och.klin.nevr. no.1:61-70 '62.  
(MIRA 15:9)

(DYSTONIA)

DAVIDENKOV, S.N.; SHAMOVA, G.V.

Spinal insults in discopathies. Och.klin.nevr. no.1:123-130 '62.  
(MIRA 15:9)  
(SPINAL CORD--DISEASES) (INTERVETEBRAL DISK--DISEASES)

SHANOVA, G.V.

Clinical aspect of Dementia disease. Och. klin. ney. no.23  
155-172 '64 (MIRA 18:1)



SHAMOVA, T.I. (Novosibirsk)

Quiz system of measuring students' knowledge in physics. Fiz. v  
shkole 22 no.2:62-64 Mr-Apr '62. (MIRA 15:11)  
(Physics--Study and teaching)

SHAMOVSKAYA, E.Z.

Hemorrhagic encephalitis. Zhur. nevr. i psikh. 60 no13:280-285  
'60. (MIRA 14:5)

1. Kafedra nervnykh bolezney (zav. - prof. D.T.Kuimov) Novosibir-  
skogo meditsinskogo instituta.  
(ENCEPHALITIS)

1. The first part of the document is a letter from the  
Director of the Central Intelligence Agency to the  
President of the United States. The letter is dated  
10/10/63 and is signed by the Director.  
The letter is a memorandum for the President's  
information. It contains a summary of the  
information received from the Soviet Union  
regarding the activities of the Soviet  
Union in the field of international  
communications. The letter is a memorandum  
for the President's information.

POTAP'YEVSKIY, A.G.; KORITSKIY, V.A.; Primalni uchastipe: KUCHEV, V.S.;  
NAKAROV, M.E.; VAYTSHEV, A.D.; KULIKOV, N.K.; SHILOVSKAYA, L.V.;  
PAGEL, S.A.; FEDOTOVA, L.P.; TATARINOV, G.V.

Ob-458m attachment for welding in CO<sub>2</sub> using PS-300, PS-300,  
and PS-500 transformers. Avton.svar. 15 no.10:68-70  
0 '62. (MEM 15:11)

(Electric welding—Equipment and supplies)

PHASE I BOOK EXPLANATION

SOV/4893

Vsesoyuznoye soveshchaniye po fizike, fiziko-khimicheskim svoystvam ferritov i fizicheskim osnovam ikh primeneniya. 31, Minsk, 1969

Perrity: fizicheskiye i fiziko-khimicheskiye svoystva. Doklady (Ferrites: Physical and Physicochemical Properties. Reports) Minsk, Izd-vo AN BSSR, 1960. 655 p. Errata slip inserted. 4,000 copies printed.

Sponsoring Agencies: Nauchnyy sovet po magnetizmu AN SSSR. Otdel fiziki tverdogo tela i poluprovodnikov AN BSSR.

Editorial Board: Resp. Ed.: N. N. Sirota, Academician of the Academy of Sciences BSSR; K. P. Belav, Professor; Ye. I. Kondorskiy, Professor; K. M. Polivanov, Professor; R. V. Telesnin, Professor; G. A. Smolenskiy, Professor; N. M. Shol'ta, Candidate of Physical and Mathematical Sciences; G. M. Smolyarenko; and L. A. Baskirov; Ed. of Publishing House: S. Kholyavskiy; Tech. Ed.: I. Volokhanovich.

PURPOSE: This book is intended for physicists, physical chemists, radio electronics engineers, and technical personnel engaged in the production and use of ferromagnetic materials. It may also be used by students in advanced courses in radio electronics, physics, and physical chemistry.

COVERAGE: The book contains reports presented at the Third All-Union Conference on Ferrites held in Minsk, Belorussian SSR. The reports deal with magnetic transformations, electrical and magnetic properties of ferrites, studies of the growth of ferrite single crystals, problems in the chemical and physicochemical analysis of ferrites, studies of ferrites having rectangular hysteresis loops, studies of multicomponent ferrite systems exhibiting spontaneous rectangularity, problems in magnetic attraction, highly coercive ferrites, problems in magnetic ferromagnetic resonance, magneto-optical effects, spectroscopy, using ferrite components in electrical circuits, anisotropy of electrical and magnetic properties, etc. The Committee on Magnetism, AS USSR (S. V. Vonsovskiy, Chairman) organized the conference. References accompany individual chapters.

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Ferrites (Cont.)

Shamayev, Yu. M., A. I. Pirogov, and G. P. Listayn. Method and Results of an Experimental Study of the Dynamic Characteristics of Pulsed Reversal of Magnetization of Ferrites	409
Bardizh, V. V., and V. V. Koblelev. Computation of Curves of the Reversal of Magnetization of Ferrite Cores	423
Shamayev, Yu. M. The Relationship Between Static and Dynamic Characteristics of Ferrites During Pulsed Reversal of Magnetization	437
Gyurin, L. M., M. A. Shchegoleva, and G. M. Pivagina. The Pulse Method of Studying Magnetostrictive Oscillations in Ferrites	441
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Card 13/18

SOV/4893

VASILEVSKAYA, L.S.; SYRKIN, L.N.; SHAMOVSKAYA, M.A.

Methods and apparatuses for the measurement of dynamic  
magnetostatic parameters. Trudy inst. Kom. stand. mer i  
izm. prib no. 64:311-320 '62. (MIRA 16:5)  
(Magnetic measurements—Equipment and supplies)

SHAMOVSKAYA, S.L. (g. Gor'kiy)

Excursion to an acetylen plant. Khim.v shkole 10 no.3:40-42

My-Je '56.

(MLBA 9:8)

(Acetylene) (Industrial tours)

124-1957-1-354

Translation from: Referativnyy zhurnal, Mekhanika, 1957, Nr 1, p 44 (USSR)

AUTHOR: Shamovskiy, B. Ya.

TITLE: Determination of the Drag Coefficient in the Presence of a Sudden Expansion of Gas (Opredeleniye koeffitsiyenta soprotivleniya pri vnezapnom rasshirenii gaza)

PERIODICAL: Tr. Novosibir. s. kh. in-ta 1955, Nr 9, pp 245-258

ABSTRACT: In an earlier work, the Author had derived an expression for the drag coefficient of the flow of a compressible fluid through a diaphragm. He now proposes that a similar expression be utilized as the starting point of the derivation of a formula to determine the drag coefficient corresponding to a sudden expansion of a compressible gas. In the expression for the diaphragm the overall drag coefficient  $C_r$  of a diaphragm is given in terms of two components, namely, the drag coefficient attributable to the flow of the gas through an aperture in the diaphragm,  $C_{ap}$  and the drag coefficient attributable to the sudden expansion of the gas.

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$C_{ap}$ . The Author proposes that the coefficient  $C_{ap}$  be determined from a generalized form of the



124-1957-1-354

Determination of the Drag Coefficient in the Presence (cont )

Bernoulli equation as written for a compressible gas. Since the value of  $\rho$  is known from the A's earlier work and  $\rho_0$  can be obtained from the Bernoulli equation, the quantity  $\rho_0$  can be determined. Formulas are derived for the determination of the velocity coefficient, the through-flow, and the jet constriction. It is shown that the velocity coefficient for a compressible gas can be assumed to be equal to the velocity coefficient of an incompressible liquid.

I. Ye. Idel'chik

1 Gas--Expansion    2. Coefficient--Determination

Card 2/2

KUNITSYN, N.M., kand.tekhn.nauk; SHAMOVSKIY, E.Kh., kand.tekhn.nauk;  
YAKOVLEV, I.M., inzh.; SOROKO, L.N., inzh.

Designing a broad cutter for the flame cleaning of metal. Izv. vys.  
ucheb. zav.; chern. met. no.3:154-160 Mr '58. (MIRA 11:5)

1.Sibirskiy metallurgicheskiy institut i Kuznetskiy metallurgicheskiy  
kombinat.

(Metal cleaning) (Metal-cutting tools)

~~SHAMOYSKIY, E.Kh.~~, kand. tekhn. nauk, dots.; YAKOVLEV, I.M., inzh.;  
KAPTANOVA, Z.K., inzh.

Splash removal during the flame cleaning of metal. Izv. vys. ucheb.  
zav.; chern. met. no.4:117-125 Ap '58. (MIRA 11:6)

1. Sibirskiy metallurgicheskiy institut.  
(Metal cleaning) (Gas welding and cutting)

SOV/148-59-2-24/24

25(1)

AUTHOR:

Shamovskiy, E.Kh. Candidate of Technical Sciences, Docent

TITLE:

Increase of the Endurance of Equipment Parts (Povysheniye iznosostoychivosti detaley oborudovaniya)

PERIODICAL:

Izvestiya vysshikh uchebnykh zavedeniy, Chernaya metallurgiya, 1959, Nr 2, pp 177-180 (USSR)

ABSTRACT:

A conference on welding engineering was convened in January 1959 by the Kemerovo sovnarkhoz. The Conference was attended by representatives from NTOChM and the Siberian Metallurgical Institute. The Conference heard the following reports: M.S.Aleksandrovich on the necessary development of welding engineering; Docent E.Kh. Shamovskiy on achievements in welding engineering in the USSR; G.F. Rybachkin on "Strengthening of Parts by Welding-on Hard Alloys in Soviet Metallurgical Plants and Outlooks on the Further Development and Introduction of this Method"; V.M. Shalamov on the introduction of automatic welding in small-scale production; A.V. Bystrov on "Experiences of Introducing Automatic Welding-On For Worn-Out Parts in USSR

Card 1/2

18(5)

SOV/135-59-9-19/23

AUTHOR:

Shanovskiy, E. Kh., Candidate of Technical Sciences

TITLE:

The First Siberian Conference on Welding

PERIODICAL:

Svarochnoye proizvodstvo, 1959, Nr 9, p 45 (USSR)

ABSTRACT:

The first Siberian Conference on Welding was convened in Barnaul by the sovnaarkhoz and the Institut elektrosvar'ki imeni Ye. O. Patona An USSR (Institute for Electric Welding imeni Ye. O. Paton As UkrSSR) from April 22-24, 1959. At this conference the development of welding science and engineering in Siberia was discussed. More than 400 engineering workers of the Altay, Irkutsk, Kemerov Krasnoyarsk, Novosibirsk, Omsk and Tomsk sovnaarkhozes participated, as well as scientific workers of the Institut elektrosvar'ki i VNIIVTOGEN (Institute for Electric Welding and VNIIVTOGEN). The Conference was opened by the Chairman of Altay sovnaarkhoz, Ya. A. Nazarev. Ye. O. Paton discussed welding in the USSR for the period 1959-1965. Candidate of Technical Sciences A. M. Shashkov, Director of VNIIVTOGEN spoke on gas flame treating of metals,

Card 1/2

The First Siberian Conference on Welding

SOV/135-59-9-19/23

and Candidate of Technical Sciences V. V. Shevernitchiy on welding designs. Candidate of Technical Sciences D. A. Dudko discussed gas-electric welding and D. M. Rabin looked at the welding of non-ferrous metals. Candidate of Technical Sciences I. I. Frumin spoke on the durability of welding machine components.

Card 2/2

SHAMOVSKIY, E.Kh.; YAKOVLEV, I.M.

Wide-range coke-oxygen cutter for flame machining and scarfing  
of cold carbon metal. Izv. vys. ucheb. zav.; chern. met. <sup>4</sup>  
no.10:165-169 '61. (MIRA 14:11)

1. Sibirskiy metallurgicheskiy institut.  
(Metal cleaning) (Gas welding and cutting)

SHAMOVSKIY, E.Kh.

Developing the design of a mechanical oxygen-coke torch for the  
flame scarfing of cold carbon metal. Izv. vys. ucheb. zav.;  
chern. met. 5 no.8:193-199 '62. (MIRA 15:9)

1. Sibirskiy metallurgicheskiy institut.  
(Gas welding and cutting)



SHAMOVSKIY, E.Kh.; ZYKOV, A.D.; KAFTANOVA, Z.K.; KRAVCHENKO, L.Ye.;  
FROLOV, N.P.; ZHURAVKIN, Ye.A.; GORBATYUK, V.L.

Mechanizing the flame scarfing of blooms. Metallurg 7  
no.8:24-27 Ag '62. (MIRA 15:9)

2. Sibirskiy metallurgicheskiy institut i Kuznetskiy  
metallurgicheskiy kombinat.  
(Steel ingots) (Metal cleaning)

1. P. CHY, L.L., kand. tekhn. nauch. i inzh. nauk, D.S., D.I., D.I., D.I., D.I.;  
2. P. CHY, D.I., inzh.; "GOSYUN", P.N., kand. tekhn. nauk, D.I., D.I., D.I., D.I., D.I.

Consultations. Svar. proizv. no.1:17-48 na 1-1.

(22: 15:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut tipa stroitel'nykh  
magistral'nykh truboprovodov (for Faytsev). 2. Sibirskiy retulor-  
gicheskiy institut (for Shamovskiy).

NEW YORK, N.Y., (UPI) - A test of a new

thing was done in the pre-heating flame of a machine used for flame  
cleaning. Over the test, it was 2-24 Mr. 195. (YIP 12:5)

L. D'Alisi, metallurgical institute.

1. The first of the two main parts of the report is a  
description of the work done during the period from  
January 1964 to March 1965. This part of the report  
is divided into two sections: a description of the  
work done during the period from January 1964 to  
February 1965, and a description of the work done  
during the period from February 1965 to March 1965.  
The second part of the report is a summary of the  
work done during the period from January 1964 to  
March 1965.

SHAMOVSKIY, E.Eh.

Mechanization of slag cleaning, Metallurg 10 no.10:32-33 0 '65.

(MIRA 18:10)

1. Sibirskiy metallurgicheskiy institut.

... N.M., TETLOV, N.M., SHAMOV, N.M., ...

Preparation of register RNA acetylated by 2'-oxy groups.  
Biochimica et Biophysica Acta 12/4 N-D '65.

(ALP 1901)

1. Institut organicheskoy Khimii Sibirskogo otdeleniya  
AN SSSR, Novosibirsk. Submitted March 15, 1966.

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A B C D E F G H I J K L M N O P Q R S T U V W X Y Z AA AB AC AD AE AF AG AH AI AJ AK AL AM AN AO AP AQ AR AS AT AU AV AW AX AY AZ BA BB BC BD BE BF BG BH BI BJ BK BL BM BN BO BP BQ BR BS BT BU BV BW BX BY BZ CA CB CC CD CE CF CG CH CI CJ CK CL CM CN CO CP CQ CR CS CT CU CV CW CX CY CZ DA DB DC DE DF DG DH DI DJ DK DL DM DN DO DP DQ DR DS DT DU DV DW DX DY DZ EA EB EC ED EE EF EG EH EI EJ EK EL EM EN EO EP EQ ER ES ET EU EV EW EX EY EZ FA FB FC FD FE FF FG FH FI FJ FK FL FM FN FO FP FQ FR FS FT FU FV FW FX FY FZ GA GB GC GD GE GF GG GH GI GJ GK GL GM GN GO GP GQ GR GS GT GU GV GW GX GY GZ HA HB HC HD HE HF HG HH HI HJ HK HL HM HN HO HP HQ HR HS HT HU HV HW HX HY HZ IA IB IC ID IE IF IG IH II IJ IK IL IM IN IO IP IQ IR IS IT IU IV IW IX IY IZ JA JB JC JD JE JF JG JH JI JJ JK JL JM JN JO JP JQ JR JS JT JU JV JW JX JY JZ KA KB KC KD KE KF KG KH KI KJ KL KM KN KO KP KQ KR KS KT KU KV KW KX KY KZ LA LB LC LD LE LF LG LH LI LJ LK LM LN LO LP LQ LR LS LT LU LV LW LX LY LZ MA MB MC MD ME MF MG MH MI MJ MK ML MN MO MP MQ MR MS MT MU MV MW MX MY MZ NA NB NC ND NE NF NG NH NI NJ NK NL NO NP NQ NR NS NT NU NV NW NX NY NZ OA OB OC OD OE OF OG OH OI OJ OK OL OM ON OO OP OQ OR OS OT OU OV OW OX OY OZ PA PB PC PD PE PF PG PH PI PJ PK PL PM PN PO PP PQ PR PS PT PU PV PW PX PY PZ QA QB QC QD QE QF QG QH QI QJ QK QL QM QN QO QQ QR QS QT QU QV QW QX QY QZ RA RB RC RD RE RF RG RH RI RJ RK RL RM RN RO RP RQ RR RS RT RU RV RW RX RY RZ SA SB SC SD SE SF SG SH SI SJ SK SL SM SN SO SP SQ SR SS ST SU SV SW SX SY SZ TA TB TC TD TE TF TG TH TI TJ TK TL TM TN TO TP TQ TR TS TT TU TV TW TX TY TZ UA UB UC UD UE UF UG UH UI UJ UK UL UM UN UO UP UQ UR US UT UU UV UW UX UY UZ VA VB VC VD VE VF VG VH VI VJ VK VL VM VN VO VP VQ VR VS VT VU VW VX VY VZ WA WB WC WD WE WF WG WH WI WJ WK WL WM WN WO WP WQ WR WS WT WU WV WW WX WY WZ XA XB XC XD XE XF XG XH XI XJ XK XL XM XN XO XP XQ XR XS XT XU XV XW XX XY XZ YA YB YC YD YE YF YG YH YI YJ YK YL YM YN YO YP YQ YR YS YT YU YV YW YX YY YZ ZA ZB ZC ZD ZE ZF ZG ZH ZI ZJ ZK ZL ZM ZN ZO ZP ZQ ZR ZS ZT ZU ZV ZW ZX ZY ZZ																									
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Photographic elementary processes in some crystals																									
L. M. Shamoy-kil, <i>Longitudinal</i>																									
N. S. 4, 77 of 1966. Alkali halide crystals become																									
colored on exposure to light beyond certain limits of																									
wave lengths. The photochemical reaction is probably a																									
mutual discharge of ions to form anion radicals W. King																									
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Equilibrium of dissociation of sulfur trioxide. J. F. Kapustinskii and L. M. Shamovskii. *Acta Physicochim.* 1952, 4, 591-592 (1952) (in English). By means of a method that is a development of the methods of Sainte-Claire Deville and Langmuir, the equil. of dissociation of  $\text{SO}_3$ ,  $\text{SO}_3 \rightleftharpoons \text{SO}_2 + 1/2\text{O}_2$ , was studied. Between 850° and 1000° values for the equil. const. of this reaction were detd., giving the following results:  $\log (P_{\text{SO}_2} / P_{\text{O}_2}) = 3.015 - T + 4.743$ ;  $\Delta F^\circ = 22,870 - 21.68 T$ ;  $\Delta F_{298}^\circ = 10,418 \text{ cal}$ ;  $\Delta S_{298}^\circ = 21.68 \text{ cal./degree}$ ;  $\Delta H_{298}^\circ = 22,884 \text{ cal./mole}$ . The values for 298° were obtained by assuming that the change of heat capacity of the system with temp. was negligible. The heat of the reaction thus obtained differs from the data of Thomsen and Berthelot by 1.2% and from the recent data of Grau, Roth and Meichner (C. A. 25, 153) by 0.2%.

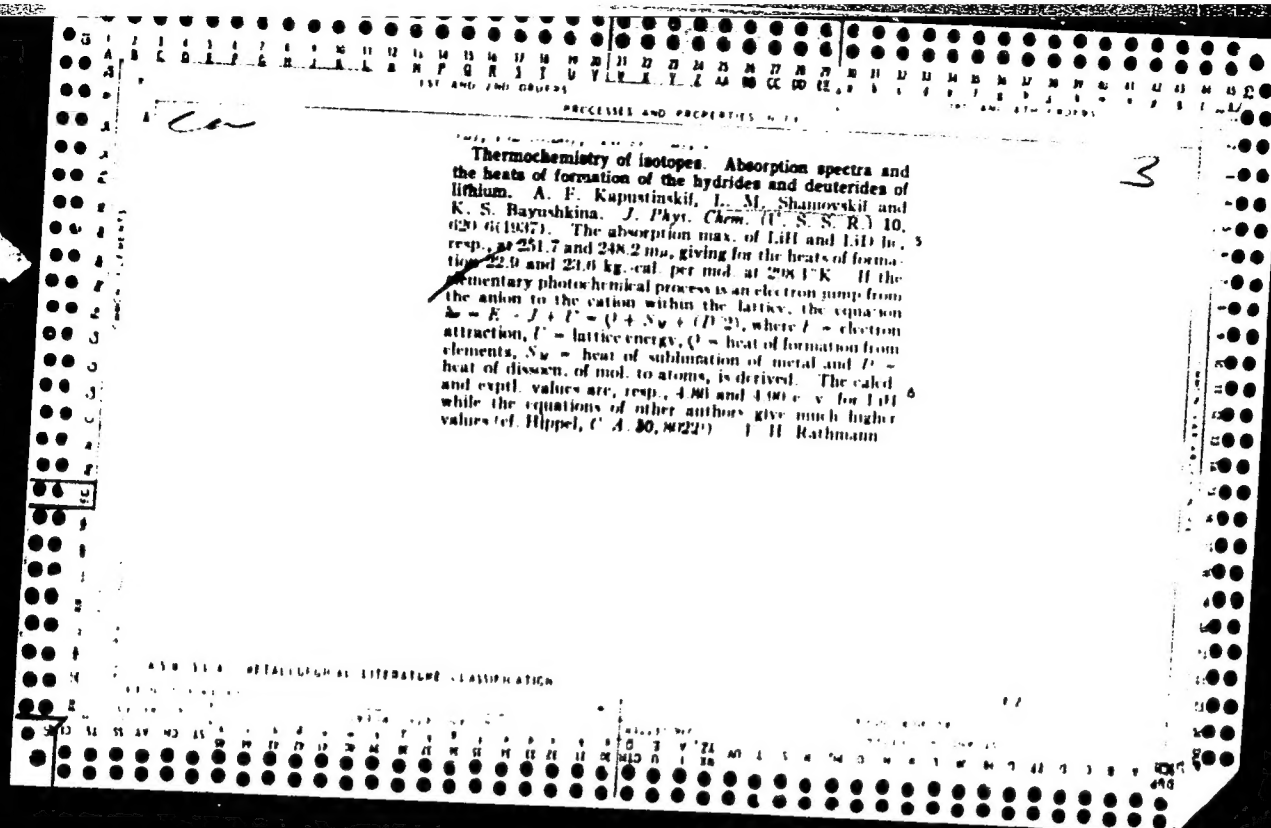
ADDITIONAL LITERATURE CLASSIFICATION



**Content of heavy water in the entrails of the earth at a depth of 1300 meters.** I. M. Shumovskiy and N. I. Sapozhnikova. *Izv. Vsesoyuzn. Nauch. Ts. K. S. S. S. R.*, 1960, No. 8, 140-141 (English). Samples of water taken at depths over 1200 m from drill holes in the Moscow region were investigated; the flotation method was used for the detn. of the  $D_2$  content. Results indicate that in deep layers of the earth's crust there is an increase in the  $D_2$  in  $H_2O$ : 14.0 H $_2$ O - 1 H $_2$ O. I. M. McMahon.

ASME 16A METALLURGICAL LITERATURE CLASSIFICATION

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<p>Thermochemistry of isotopes. Absorption spectra and heats of formation of lithium hydride and deuteride. A. F. Kapustinskii, L. M. Shamovskii and K. S. Bayushkina. <i>Acta Physicochim.</i> U. R. S. S. 7, 760-810 (1957) (in English).—See C. A. 32, 5699d. F. H. R.</p>																																																			
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Absorption spectra of heteropolar crystals and the crystal lattice energy. L. M. Shamovskii. <i>Trans. All-Union Sci. Research Inst. Econ. Mineral.</i> (U. S. S. R.) No. 130, 6-50 (in English 51) (1938). - A critical review of the modern conception of the relation between optical and thermal properties of heteropolar crystals. Sixty-seven references. A. A. Polgorniy																																																			
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